

IN THE UNITED STATES PATENT AND TRADE MARK OFFICE

In re PATENT APPLICATION of:

Shin-ichi Kumamoto

Group Art Unit: 1755

Serial No.: 09/886,375

Examiner: Pasterczyk, James W

Filed: June 22, 2001

For: SOLID CATALYST COMPONENT AND CATALYST FOR OLEFIN
POLYMERIZATION, AND PROCESS FOR PRODUCING OLEFIN POLYMER



DECLARATION UNDER 37 C.F.R. 1.132

Assistant Commissioner for Patents

Washington, D.C. 20231

Sir:

I, Shin-ichi Kumamoto, a citizen of Japan, residing at 1-9-4-415, Yushudainishi, Ichihara-shi, Chiba, Japan, do hereby declare and say that:

1. I am a member of a team which has been researching and developing Polymerization Catalyst for Polyolefin, and therefore I am familiar with the subject matter disclosed in the above-identified application;

2. I was graduated from Waseda University in 1993, and since then, I have been employed by Sumitomo Chemical Company, Limited, where I have been engaged in the research and development works on polymerization catalyst for polyolefin at the Petrochemicals Research Laboratory of said company;

3. I have read and sufficiently understood the Official Action with the mailing date of July 13, 2004; and

4. In order to attain the below-mentioned purpose, the following experiments were conducted.

1. Purpose of the Experiments

The purpose is to show unobviousness of the present invention, by comparing the present invention with each of Matsuura I (U.S. Patent No. 4,822,763), and Matsuura II (U.S. Patent No. 4,617,284).

2. Experiment

(1) Experiment 1

[Preparation of solid catalyst component]

Example 1 of Matsuura I (U.S. Patent No. 4,822,763) was repeated, thereby obtaining a solid catalyst component.

Said solid catalyst component was found to contain a titanium atom in an amount of 2.21% by weight, and a valence of said titanium atom measured according to a polarographic method was found to be four.

[Polymerization]

Example 1 (3) of the present invention was repeated except that:

(i) 14.2 mg of the solid catalyst component obtained in Example 1 (2) was changed to 9.1 mg of the above-mentioned solid catalyst component obtained in this Experiment 1;

(ii) 600 g of butane was changed to 660 g thereof; and

(iii) an amount of 1-butene was changed to 90 g; thereby obtaining a polymer.

Its polymerization activity was 12,600 g-polymer/g-solid catalyst component/hr. Said polymer had SCB of 14.7, FR of 2.08, FRR of 24.7, and CXS of 7.9% by weight, respectively.

(2) Experiment 2

[Preparation of solid catalyst component]

Example 1 of Matsuura II (U.S. Patent No. 4,617,284) was repeated, thereby obtaining a solid catalyst component.

Said solid catalyst component was found to contain a titanium atom in an amount of 8.77% by weight, and a valence

of said titanium atom measured according to a polarographic method was found to be four.

[Polymerization]

Example 1 (3) of the present invention was repeated except that:

(i) 14.2 mg of the solid catalyst component obtained in Example 1 (2) was changed to 8.4 mg of the above-mentioned solid catalyst component obtained in this Experiment 2;

(ii) 670 g of butane was changed to 660 g thereof; and

(iii) an amount of 1-butene was changed to 80 g; thereby obtaining a polymer.

Its polymerization activity was 27,400 g-polymer/g-solid catalyst component/hr. Said polymer had SCB of 12.8, FR of 3.88, FRR of 33.7, and CXS of 7.4% by weight, respectively.

3. Conclusion

Fig. A attached below shows a relation between SCB and CXS obtained in all Examples 1 to 16 of the present invention, all Comparative Examples 1 to 4 thereof, and the above Experiments 1 and 2.

It is easily be recognized from Fig. A that CXS obtained in each of the above Experiments 1 and 2 is higher than that obtained in the present invention; namely, an amount of a low molecular weight component contained in the polymer obtained in each of the above Experiments 1 and 2 is larger than that obtained in the present invention.

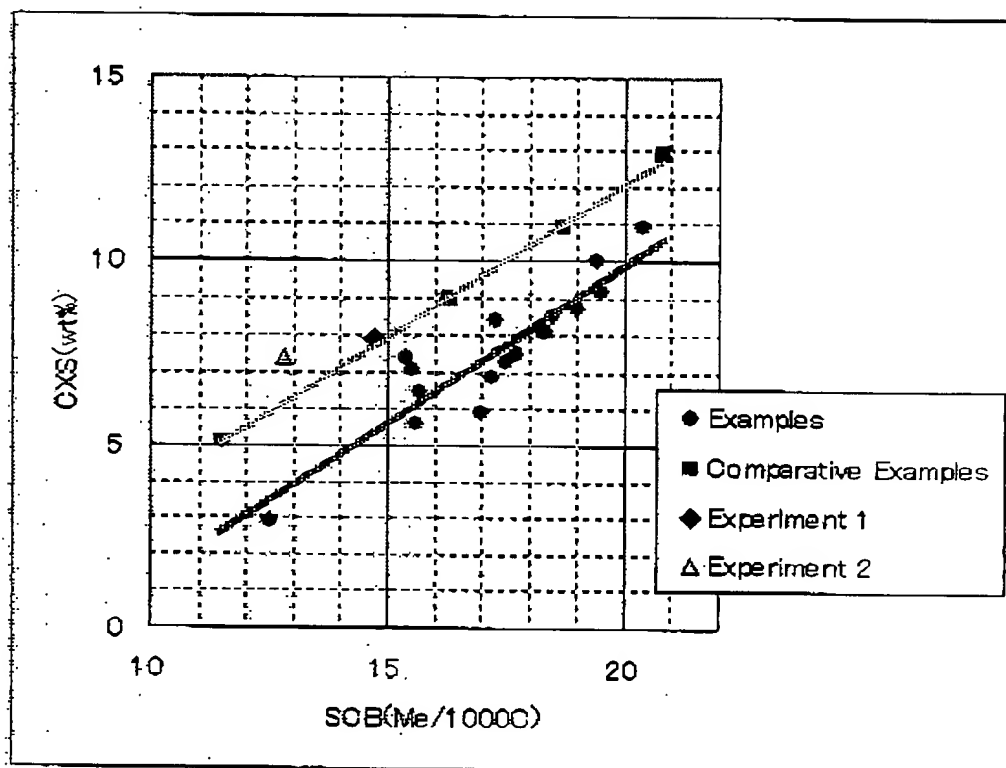


Fig. A

I hereby declare further that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1031 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Signed this 16th day of December, 2004

Shin-ichi Kumamoto
Shin-ichi Kumamoto